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UT midnight preference for the onset of geomagnetic storms

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The statistics of occurrence of the geomagnetic storms (Dst < -50 nT) in the last three solar cycles is presented. Along with the known high solar activity and equinoctial preferences for the occurrence of the storms, the statistics reveals a new aspect. The main phase (MP) onset of the geomagnetic storms has a preference at around UT midnight. Over 100% excess MP onsets occur at UT midnight compared to a uniform distribution, which is found to be consistent in all solar cycles. Though the preference is not understood, it is noted that the corresponding noon meridian is in the Pacific sector where the separation between geomagnetic and geographic equators is a minimum and declination angle is nearly constant so that magnetosphere and ring current become symmetric in north and south. That may help efficient solar wind-magnetosphere coupling and ring current intensification, which may cause the frequent occurrence of MP onset.